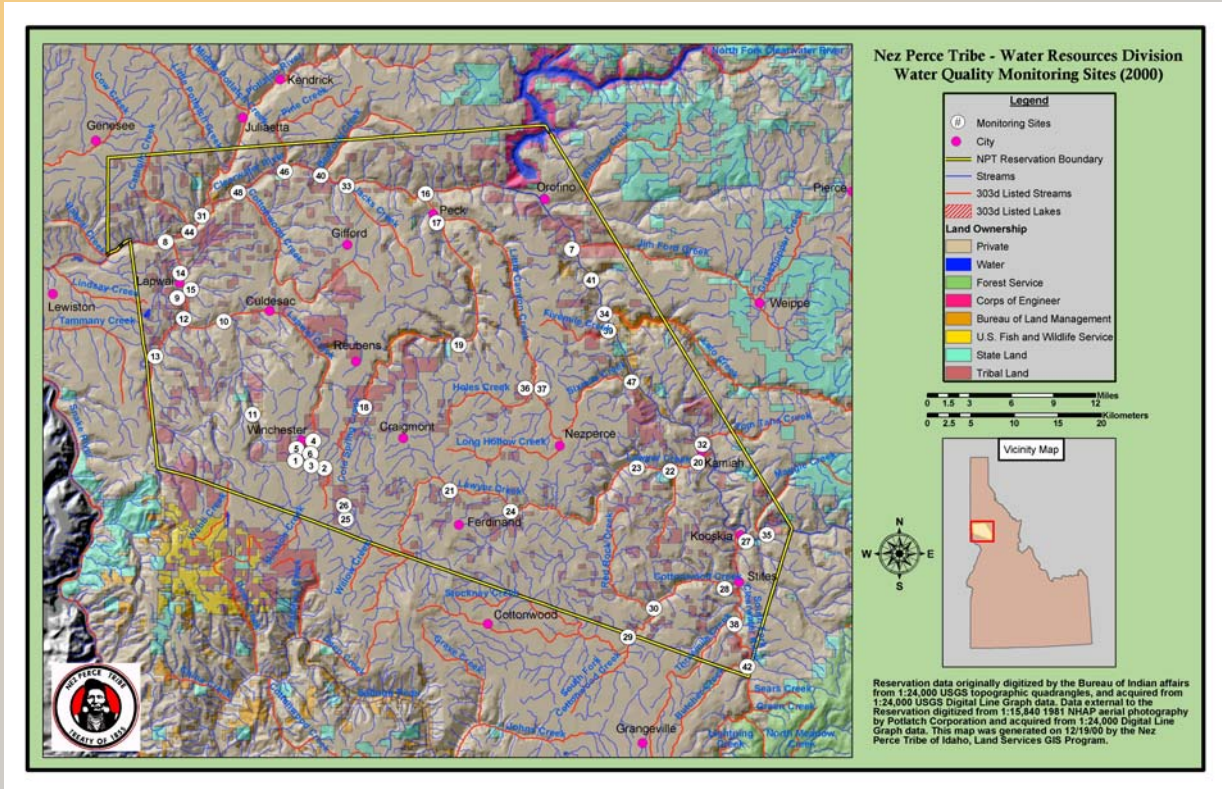
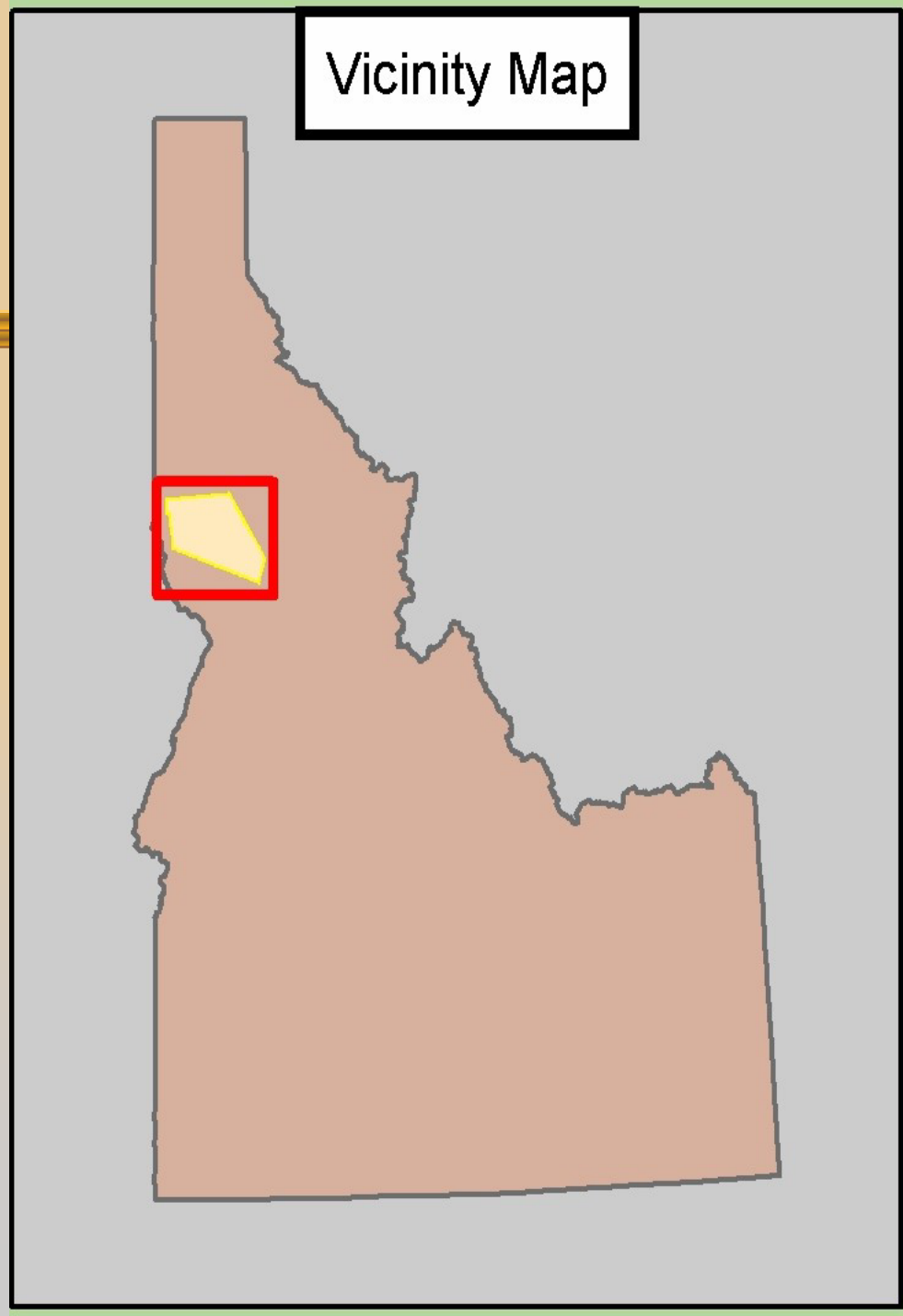
Water Quality Monitoring and the Nez Perce Tribal Nation



Nez Perce Tribal Nation

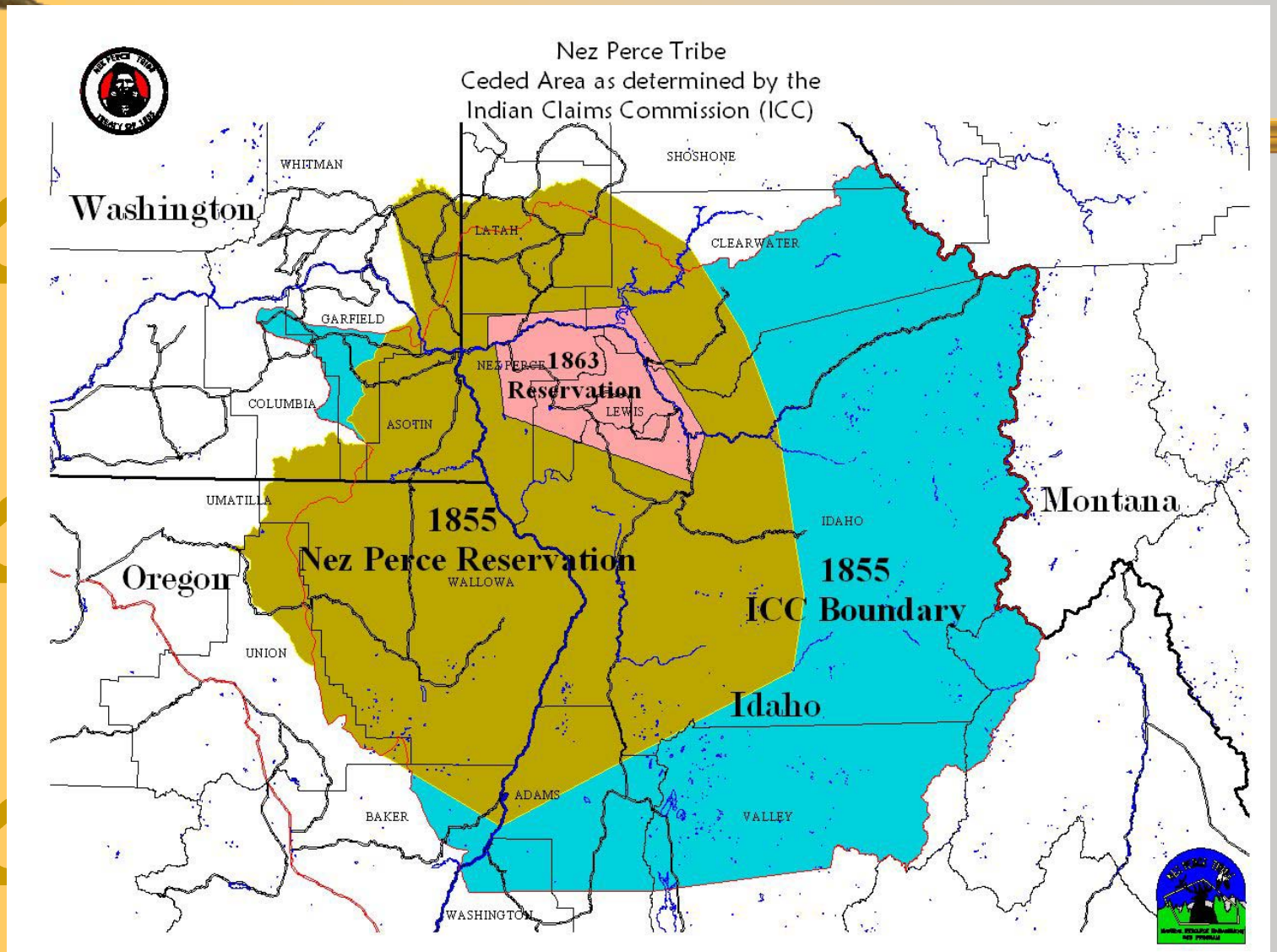
- North Central ID
- 750,000 acres
- 4 Counties
  Clearwater, Nezperce, Lewis, and Idaho.



The Nez Perce Reservation

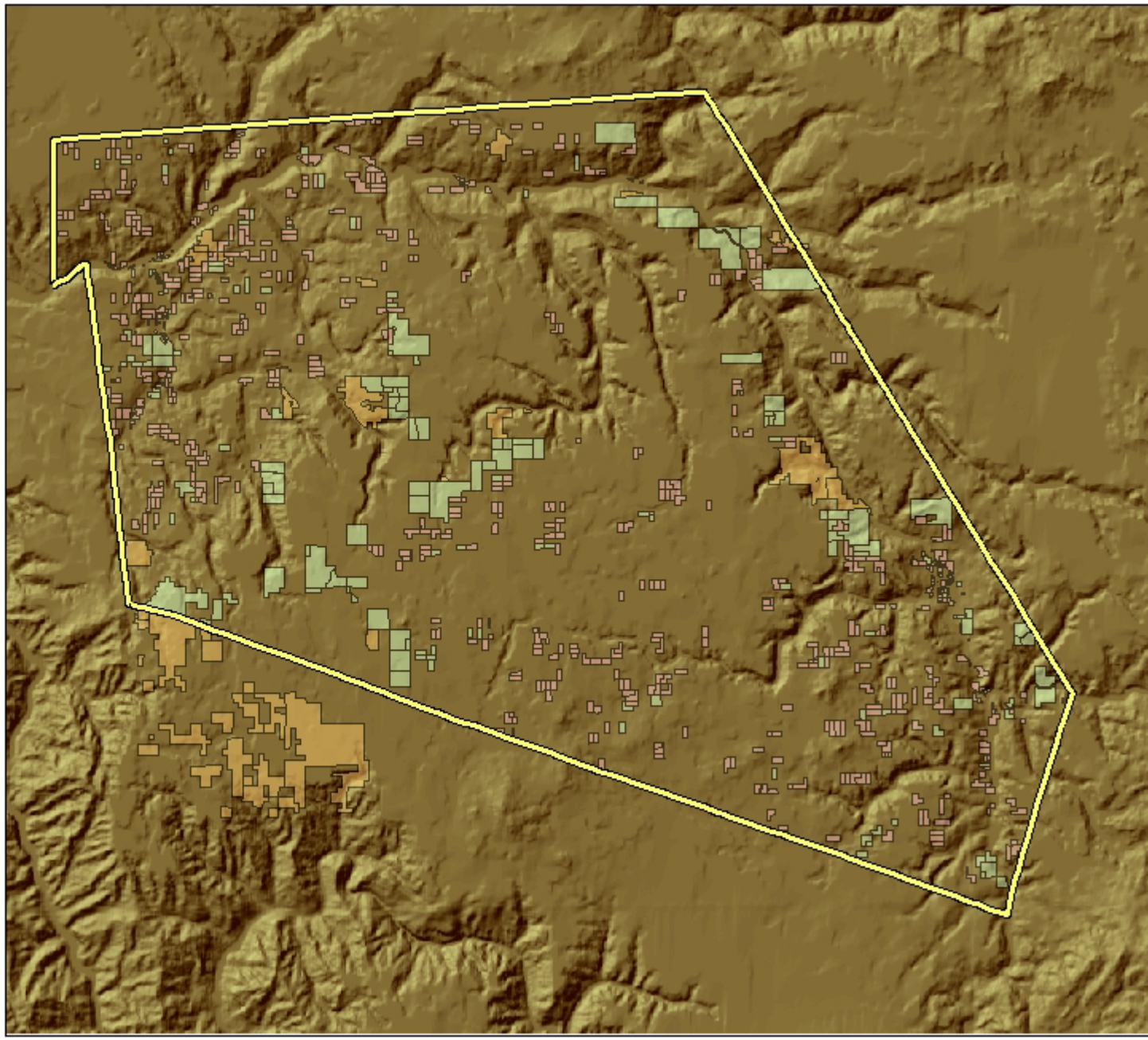
Figure 1: A rendering of the Nez Perce Reservation obtained by draping a Landsat TM image over a DEM. The Clearwater River runs along the northern (top) boundary of the reservation, and is a major tributary to the Snake River, shown on the left (west) edge of the image. TM bands are displayed in a manner than shows active vegetation in green tones. The northern boundary of the reservation is approximately 30 miles wide.

Ceded Territory



Indian Ownership - Nez Perce Reservation

0 2.5 5 10 15 20
Miles



N
W E
S

Legend

Ownership Catagories

- Individual Allotments - Trust
- Tribal - Fee
- Tribal - Trust

Landscapes

- Diversity of Landscapes within the Reservation
  - Mountainous reaching 3,800 ft in elevation
  - Prairies (major recharge areas)
  - Lowland valley habitats 800 ft in elevation
  - Forest lands

Water

- Clearwater River
  - Reservation Watersheds drain into the Clearwater.
  - The Clearwater flows for Approximately 71 miles through the Nez Perce reservation.

Land Use

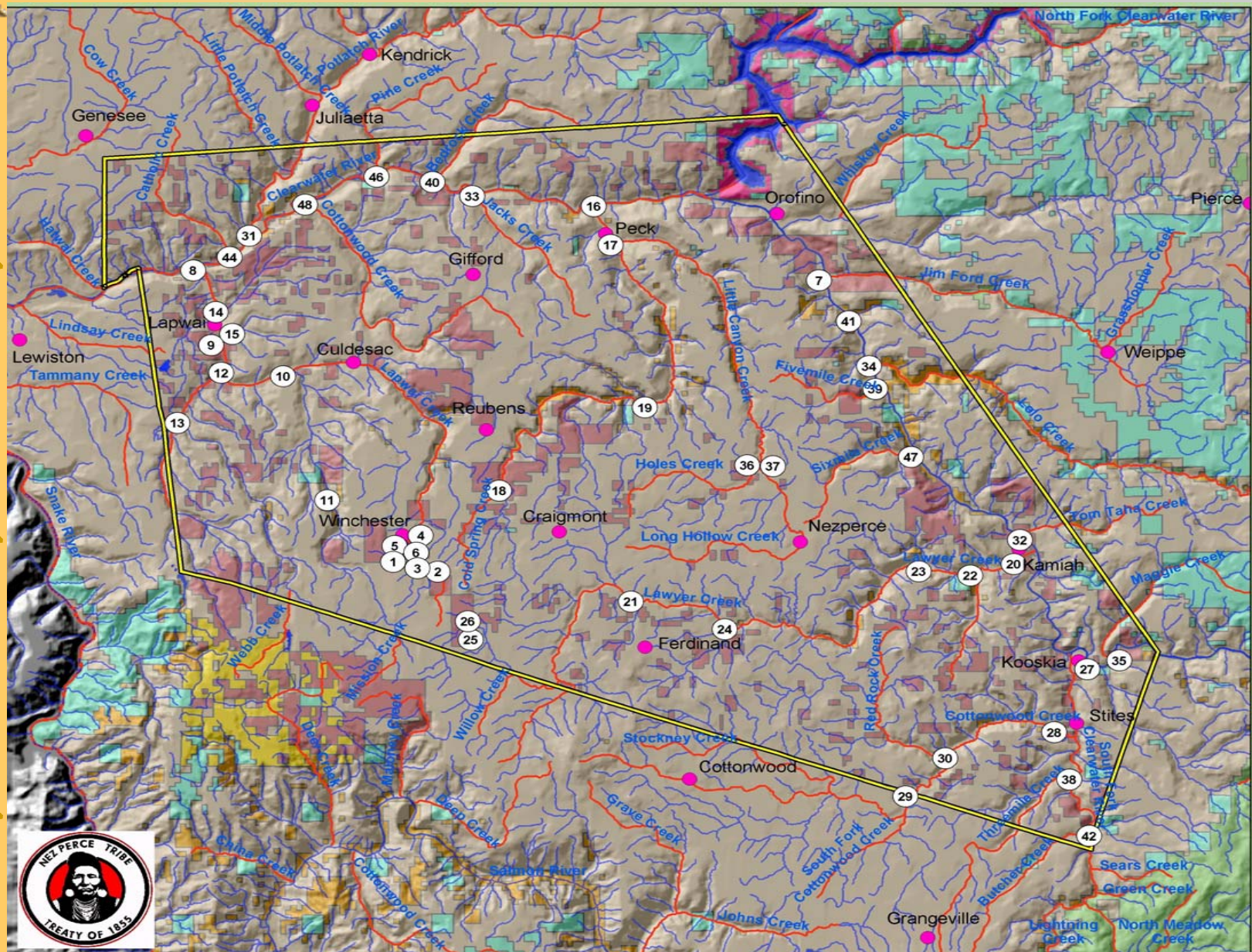
- Tribal Cultural land use activities
- Agriculture
- Recreation
- Timber Management
- Live Stock Management

Water Quality Monitoring

- Rational behind monitoring
  - Assist Total Maximum Daily Load (TMDL).
  - Establish “Base Line Data” for the Reservation.
  - Assist other Tribal Natural Resource Departments.
  - Address Tribal Members Water and Health Concerns.

Monitoring Sites

Currently 53 Monitoring sites



Monitoring Parameters

- Nutrients
- Bacteria
- Stream discharge
- Bed load
- Total suspended solids
- Hydro-lab Data
- In-Situ stream stage loggers
- Temperature loggers
- Turbidity

QA/QC

- Stands for
  - Quality Assurance/Quality Control
  - Insures accurate and reliable data
- Calibration, maintenance, and training of field technicians
- Needed to share raw data and metadata

Equipment Used

Hydro-lab

Sample Bottles

DH-48

Helley Smith

Coolers & blue ice

Calibration Solutions

Flow Meter

Turbidimeter

Misc

Methods

- Stream grab samples for nutrients & bacteria

  - Site Id, Collector, Time, Date, Sample type.
  - Collect Duplicate Samples
  - Collect field blank “control”
  - Follow QA/QC policy

Stream Flow

- Flow Meter
- Wadding Rod
- Flow Form
- Meter Tape & pins
- Calculator
- Waders!!!!!

Sediment Monitoring

- Depth-Intergraded Samplers
- DH-48
  - Samples TSS
- Helley-Smith
  - Samples bedload

HydroLab Mulitprobe unit

This “Multiprobe” Unit is used to collect the following:

Ph, Conductivity, DO, and temperature

Turbidity

Hach 2100P Turbidimeter

Measures Light scattering Solids in the stream called turbidity

EMAP and the Tribe

- Attended Training in June 2001
- 2002 Training Review Start EMAP Field Sampling
- 2003 Continue EMAP Sampling
- 2004 Field Sampling
- 2005 Final Report on Completed Project

EMAP Questions

- What is the Ecological Condition of Streams With in the Reservation?
- Can EMAP Indicators be useful in Assessing Impact from Alteration?
- How can EMAP Assist in Developing Accurate Environmental Indicators, Non-Point Source Assessments, Water Quality Reports, and Biological Criteria?

Conclusions

- EMAP will play a major role in assessing the current condition of streams with in the reservation.
- Special Thanks to :
  - Roger Blair, EPA, ORD, Corvallis
  - Gretchen Hayslip, EPA Region 10
  - Ann Storrar, Nez Perce Tribe, Water Resource Division